Android App Incorporating the PVT to Deliver Individualized Fatigue Risk Management in Commercial Trucking

Completed Technology Project (2011 - 2012)

Project Introduction

The overarching objective of this project is to achieve an Android App that incorporates the Psychomotor Vigilance Task (PVT) to deliver Individualized Fatigue Risk Management in 24-7 occupations that involve fatigue stressors (e.g., extended duty hours, chronic sleep restriction, night work, and jet lag). This project has the following 3 specific aims: (1) Develop PVT feedback algorithm for use with truck driver populations; (2) Design smartphone fatigue management user interface with vigilance feedback and sleep entry; and (3) Develop prototype Android App with PVT and fatigue management interface. During this project we met all of the objectives. We completed an Android App with PVT and fatigue management interface. This app enables users to perform the PVT, set a wake-up alarm, input and track sleep history, and receive feedback from PVTs taken. The deliverables achieved in this project provide a critical element needed to complete the next stage of our research and development—the Android App with PVT and fatigue management interface to complete data acquisition on commercial truck drivers during long-haul trucking operations.

Anticipated Benefits

The overarching goal of this project is to achieve a smartphone-based fatigue management tool app that incorporates the PVT. The deliverable achieved in this project will address a critical need for cost-effective tools for the serial assessment of neurobehavioral performance in operational environments using ubiquitous mobile devices. Such tools are especially needed in occupations where human performance has precise operational constraints and important safety implications, such as space exploration, military operations, air travel, and emergency health care.

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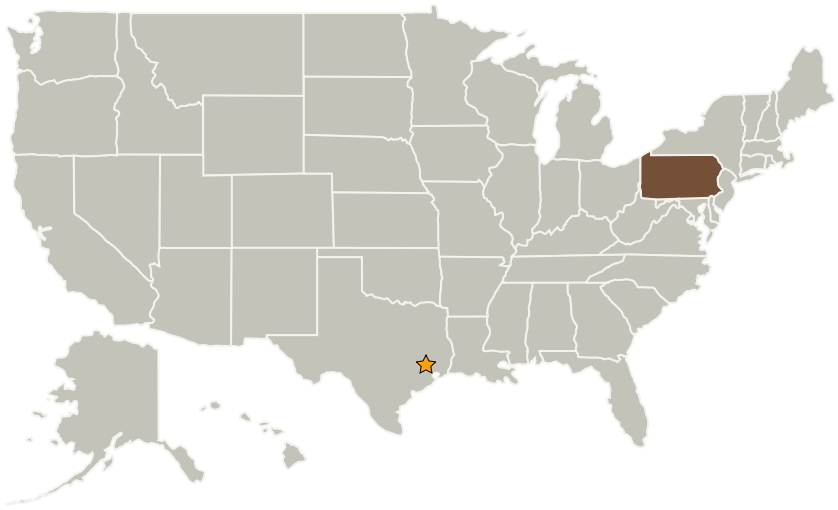
Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Pulsar Informatics Inc	Supporting Organization	Industry	

Primary U.S. Work Locations
Pennsylvania

Project Transitions

September 2011: Project Start

February 2012: Closed out

Closeout Summary: During this reporting period we achieved the following obj ectives/tasks: (1) Developed PVT feedback algorithm for use with truck driver p opulations; (2) Designed smartphone fatigue management user interface with vi gilance feedback and sleep entry; and (3) Developed prototype Android App wit h PVT test and fatigue management interface.

Organizational Responsibility

Responsible Mission Directorate:

Space Operations Mission Directorate (SOMD)

Lead Center / Facility:

Johnson Space Center (JSC)

Responsible Program:

Human Spaceflight Capabilities

Project Management

Program Director:

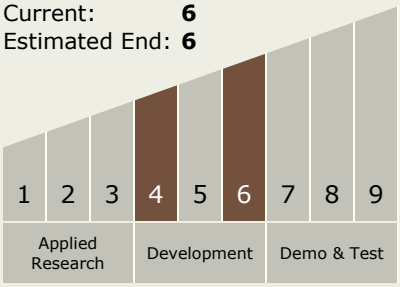
David K Baumann

Principal Investigator:

Daniel J Mollicone

Technology Maturity (TRL)

Start: **4**
Current: **6**
Estimated End: **6**



Technology Areas

Primary:

Continued on following page.

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Project Website:

https://taskbook.nasaprs.com

Technology Areas *(cont.)*

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.3 Human Health and Performance
    - TX06.3.3 Behavioral Health and Performance

Target Destinations

The Moon, Mars